



PR751 issued: 28th October 2008

Hospital trial shows copper reduces contamination

A study carried out at Selly Oak Hospital in Birmingham has shown that surfaces made with materials that contain copper kill a wide range of potentially harmful micro-organisms – significantly reducing the number of these organisms that can come into contact with patients, visitors and staff.

The study found that, when tested, items made from copper had up to 95 per cent fewer micro-organisms on them, compared with the same items made out of standard materials such as stainless steel.

The study was led by Professor Tom Elliott, a Consultant Microbiologist and Deputy Medical Director at University Hospitals Birmingham NHS Foundation Trust, which runs Selly Oak Hospital.

He said: “What this must mean is that the risk of picking up an infection is reduced, because we know that one of the vehicles where organisms can spread from one surface to another is by touching them. So the results are very exciting.

“The findings of a 90 to 95 per cent killing of those organisms, even after a busy day on a medical ward with items being touched by numerous people, is remarkable. So it may well offer us another mechanism for trying to defeat the spread of infection.”

Professor Elliott was invited to present the findings at the prestigious Interscience Conference on Antimicrobial Agents and Chemotherapy in Washington DC, USA, which attracts 10,000 delegates from around the world, this afternoon (Tuesday October 28).

The study was a collaboration between Professor Elliott and two other eminent microbiologists, Professor Peter Lambert at Aston University, Birmingham, and Professor Bill Keevil, of the University of Southampton. It was funded by an education grant provided by the Copper Development Association in the United Kingdom.

Laboratory testing conducted at Aston University in Birmingham had demonstrated that the number of common hospital pathogens were significantly reduced when in contact with a copper-containing surface as compared to stainless steel. For example, MRSA was killed within one hour of contact with the surfaces.

To follow up these findings, in the first clinical study of its kind, items that contained copper, including taps, door push-plates, grab-handles, a toilet seat and a bedside trolley were specially made by local manufacturers and placed in a ward at Selly Oak Hospital.

In the main element of the study, the items were swabbed twice a day, along with similar items made with conventional materials. The samples were taken to Aston University where they were examined to see how many micro-organisms were present.

After the five weeks, the items were swapped over and tested for another five weeks. This unique 'crossover' technique was designed to potential bias caused by the items being used in different locations and so in different ways.

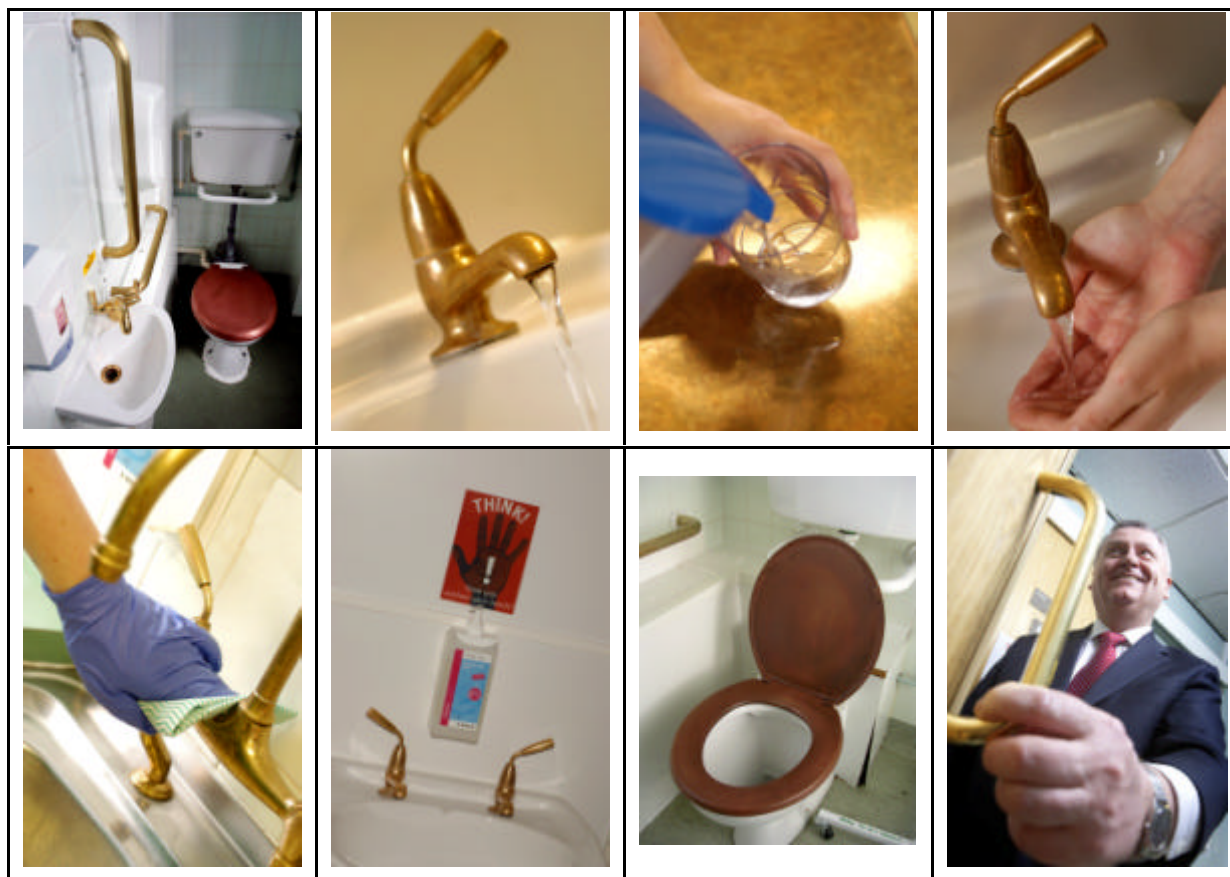
Prof Elliott said: "I have been a consultant microbiologist for several decades and have got some experience in terms of fighting infections. This is the first time I have seen anything like copper in terms of the effect it will have on the environment. We have talked about different agents in the past, cleaning agents like chlorine and hydrogen peroxide which have an immediate effect but not a long lasting effect like copper.

"It's what I would call an intelligent metal. The copper is quietly working away in the background, killing organisms all the time. It needs to be part of what we call a bundle of care in terms of an approach to preventing infection. This gives us another arm, another weapon to fight infection which is around us and challenging us all the time. So I would see this in addition to the measures we are taking at the moment."

Prof Lambert said: "While no MRSA was found either on the copper-containing surfaces or the standard items, because the findings strongly mirror the results of the laboratory trials, it is safe to assume that copper in a clinical environment would be just as effective against MRSA."

Prof Elliott will now lead a larger study, starting next year, to establish how the potential benefits of using copper might best be realised.

He said it was not clear how the copper kills micro-organisms – but it may be through the activity of ions released by the metal. He also suggests the copper may be attacking membranes in the cell walls of the organisms, preventing them from feeding.



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